

We claim:

1. An apparatus in a data processing system, said apparatus comprising:  
a voltage controller having an output and being coupled to receive a signal  
indicating a level of voltage, and  
a detector of power change coupled to said voltage controller to provide said  
signal in response to a change in power level in said data processing  
system.
2. An apparatus according to claim 1 wherein said voltage controller is coupled to  
receive a signal to boost voltage and wherein said apparatus compensates for a potential  
voltage droop.
3. An apparatus according to claim 1 wherein said voltage controller is coupled with  
a power distribution bus and wherein said detector of power change detects a change in  
one of current or voltage.
4. An apparatus according to claim 1 wherein said voltage controller comprises an  
adjustable reference voltage coupled to receive a signal from said detector of power  
change.
5. An apparatus according to claim 1 wherein said detector of power change is  
coupled with a microprocessor and said voltage controller and said detector of power  
change detects a change in current drawn by said microprocessor.

6. An apparatus according to claim 4 wherein said adjustable reference voltage is coupled to provide a voltage level reference according to said signal from said detector of power change.

7. An apparatus according to claim 1 wherein said detector of power change may comprise a hardware or a software current detector.

8. A method for providing a supply of power in a data processing system, said method comprising:

detecting a change in current drawn by said data processing system;

determining according to the change in current a power level;

increasing a voltage level for a predetermined amount of time.

9. A method as in claim 8 wherein said change in current is detected at a microprocessor to determine whether an increase in demand for power is occurring or is about to occur.

10. A method as in claim 9 wherein said method is used to compensate for a voltage droop in said data processing system.

11. A method as in claim 10 wherein said detecting comprises determining a change in compute load as an indicator of the change in current level.

12. A method as in claim 10 wherein a voltage controller is coupled to receive a current level signal and said voltage controller adjusts said voltage level based on said current level signal.
13. A method as in claim 12 wherein an adjustable reference voltage is coupled to the voltage controller to receive said current level signal and determine said voltage level, which the voltage controller is to provide via said power distribution bus to said microprocessor.
14. A method as in claim 12 wherein said voltage controller, in order to neutralize any voltage droop that can occur, increases the voltage level at the microprocessor for a limited time up to a predetermined voltage level.
15. A method as in claim 14 wherein said voltage controller after a limited time has elapsed decreases the voltage back to within normal parameters.
16. A method for providing a supply of power in a data processing system, said method comprising:
- programming a microprocessor in said data processing system with instructions to anticipate changes in compute load levels;
  - determining according to said compute load level the power level needed at the microprocessor;
  - increasing the voltage level for a predetermined amount of time in response to said determining.

17. A method as in claim 16 wherein said programming instructions are used to anticipate changes in compute load, which are coupled with current level changes, and , in turn, determine whether an increase in demand for power is occurring or is about to occur.

18. A method as in claim 16 wherein said programming instructions send a signal to a voltage controller to indicate the changes in current level at the microprocessor.

19. A method as in claim 18 wherein said voltage controller is coupled to receive said signal and said voltage controller determine the voltage level needed to be supplied via a power distribution bus to said microprocessor.

20. A method as in claim 19 wherein said voltage controller, in order to neutralize any voltage droop that may occur, increases the voltage level for a limited time up to predetermined voltage level.

21. A method as in claim 20 wherein said voltage controller after a limited time has elapsed decreases the voltage back to within normal parameters.

22. A method of controlling the operation of a data processing system, said method comprising:

operating said data processing system at a first operating frequency;

raising a power supply voltage from a first voltage to a second voltage;

operating, after said raising, said data processing system at a second operating frequency which is greater than said first operating frequency.

23. A method of claim 22 further comprising:

boosting said second voltage for a period of time concurrently with an initial portion of time of said operating at said second frequency.

24. A method as in claim 22 further comprising:

lowering said operating frequency from said second operating frequency;

lowering said power supply voltage from said second voltage after said lowering of said operating frequency.